



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

71348 U.S. PTO  
08819497  
03/17/97Prior Application

Applicant: Robert Goldman

Serial No.: 08/186,302

Group Art Unit: 2414

Filed: January 25, 1994

Examiner: P. Assouad

Title: Digital Audio System for Radio Stations

\* \* \*

TRANSMITTAL OF FILING UNDER 37 CFR 1.60(b)Assistant Commissioner for Patents  
Washington, DC 20231**ATTN: BOX PATENT APPLICATION**

Sir:

This is a request for filing a

☒ Continuation☐ Divisional

application under 37 CFR §1.60, of the above-named pending prior application

**1. Copy of Prior Application as Filed Which is Attached**

- ☒ The undersigned hereby verifies that the attached papers are a true copy of the above-identified prior application, including the oath or declaration originally filed (37 CFR 1.60).

The copy of the papers of prior application as filed which are attached hereto are as follows:

- ☒ 13 page(s) of specification  
☒ 7 page(s) of claims  
☒ 2 page(s) of abstract

**2. Amendments**

- ☐ Cancel in this application original claims  $\geq$  of the prior application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☒ A preliminary amendment is enclosed. (Claims added by this amendment have been properly numbered consecutively beginning with the number next following the highest numbered original claim in the prior application.)
- ☒ A letter enclosing formal drawings is submitted.

**3. Fee Calculation (37 CFR 1.16)**

Small Entity Status is claimed.

CLAIMS AS FILED

(1) For	(2) Number filed	(3) Number extra	(4) Large Entity Rate	(5) Small Entity Rate	(6) Calculations
Basic Filing Fee	XXXXXXXX	XXXXXXXX	\$ 770.00	\$ 385.00	\$ 385.00
Total Claims	32 - 20 =	12	X \$ 22.00	X \$ 11.00	\$ 132.00
Independent Claims	8 - 3 =	5	X \$ 80.00	X \$ 40.00	\$ 200.00
Multiple Dependent Claim(s) (if applicable)			\$ 260.00	\$ 130.00	\$ 0.00
Total of above Calculations =					\$ 717.00
			Other		\$ 0.00
			TOTAL FEE		\$ 717.00

**4. Priority Under -- 35 U.S.C. 119**

- ☐ Priority of application Serial No.  $\geq$  filed on  $\geq$  in  $\geq$  is claimed under 35 U.S.C. 119.
- ☐ The certified copy has been filed in prior U.S. application Serial No.  $\geq$  on  $\geq$ .
- ☐ The certified copy will follow.

**5. Priority Under -- 35 U.S.C 120**

- ☒ Amend the specification by inserting before the first line the sentence:

--This is a

- ☒ continuation
- ☐ divisional of copending application(s)
- ☒ Serial No. 08/186,302 filed on January 25, 1994"
- ☐ International Application  $\geq$  filed on  $\geq$  and which designated the U.S.--

With respect to the prior copending U.S. application from which this application claims benefit under 35 U.S.C. 120, the inventor(s) in this application are:

- ## 7. Assignment

8. Fee Payment Being Made At This Time

[X]	Enclosed	
[X]	basic filing fee	\$ 385.00
[ ]	recording assignment (\$40.00; 37 CFR 1.21(h))	\$ 0.00
[X]	extra claims fee	\$ 332.00

[X] Charge Account No. 07-1896 in the amount of \$717.00. A duplicate of this request is attached.

## 10. Power of Attorney

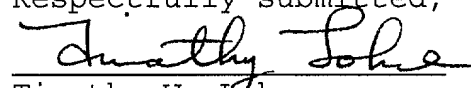
- [X] The power of attorney in the prior application is to William C. Roch, Reg. No. 24,972.
- [X] A new Power of attorney to Gray Cary Ware & Freidenrich is enclosed for this continuation application.

[X] All future correspondence should be addressed to:

Patent Department  
GRAY CARY WARE & FREIDENRICH  
400 Hamilton Avenue  
Palo Alto, CA 94301

Respectfully submitted,

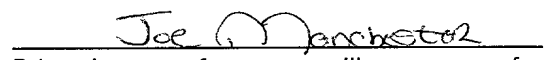
By:

  
Timothy W. Lohse  
Reg. No. 35,255  
Attorney for Applicant

EXPRESS MAIL number: EH888455394US

Date of Deposit: March 17, 1997

I hereby certify that this paper is being deposited with the United States Postal Service "EXPRESS MAIL Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks; Washington, DC 20231.

  
Printed name of person mailing paper or fee

Signature



DIGITAL AUDIO SYSTEM FOR RADIO STATIONSBACKGROUND OF THE INVENTION1. Field of the Invention

5           The present invention relates generally to a digital audio system for radio stations, and more particularly pertains to a programmable digital audio system for radio stations wherein the music to be played and broadcast over the radio station is stored in a digital database from which it is recalled pursuant to prior programming of the operation of the radio station.

2. Discussion of the Prior Art

Recording of audio music has progressed significantly over the past decade. The introduction of digital audio music has created a revolution in the quality of sound available for home users and for radio stations nationwide. The compact disk has become the standard for high quality digital audio, and has had a high acceptance rate in the marketplace.

20           In a typical prior art radio station environment, the disks to be played and broadcast are located and retrieved from a CD musical library. The disks are then loaded into a CD player, the music cued to play, and subsequently the disks are returned to the library after play, actions which require time, labor, money and space. With the latest developments in computer technology, many of these steps can be eliminated to result in bottom-line savings to a commercial radio station.

30 SUMMARY OF THE INVENTION

Accordingly, it is a primary object of the present invention to provide a digital audio system for

1 radio stations wherein the broadcast music is stored in  
a digital database to provide a programmable radio  
station. ....

The concept of the present invention is  
5 relatively straightforward; instead of having the music  
exist on compact disks, the music is stored in a common  
digital database which is present in a computer system.  
The operator only needs to point an arrow at the name of  
the desired song to be played, press a button and the  
10 music is then immediately played in full digital sound.  
The order of the songs can be programmed in advance and  
played without staff intervention. Commercials and  
station promotions can be inserted as needed.

The database is created by loading desired CD  
15 tracks from the station CD library once, and additional  
songs can be loaded as necessary. Once the database is  
created, the compact disks need not be used again; all  
music is played directly from the database.

Another feature of the present invention  
20 improves the system operation and performance even more.  
If a song is not available in the radio station's  
database, it can be transmitted to the system upon  
request over a telecommunications link that provides  
music from a master library database to the station's  
25 system.

Each system can be customized to the station's  
operational procedures. The system can adapt current  
forms and provide any reports that the station currently  
requires, and station logs can be maintained auto-  
30 matically. All required FCC logs can be automatically  
recorded, summarized, and printed as required.

1           The present invention provides substantial  
cost savings in the operation of a commercial radio  
station in the following areas:

          In staffing, fewer people are required for the  
5 station operation. Compact disks no longer need to be  
taken from the library and returned after each play.  
People are not needed to cue songs to play, as it is  
automatically handled by the system of the present  
invention.

10           In space savings, large music libraries are no  
longer necessary. Music is loaded once in advance into  
the system, and the source of the music (e.g., CD) need  
not be stored or saved.

          In equipment savings, fewer tape/CD players  
15 are necessary, resulting in dramatic maintenance cost  
savings.

          In efficiency, the system of the present  
invention is very easy to operate. The person in charge  
of programming selects the music to be played and places  
20 the music in a desired program order. A prior day's  
program can be used as a guide in planning future  
programming. The system then validates the selections  
and requests the loading of any material not present  
either by tapes/CD's or by downloading if available.  
25 Work station consoles are available throughout the  
station for use by engineers, DJ's and others  
responsible for station operation.

          In reliability, a backup computer system  
automatically takes over for the primary computer system  
30 in case of failure. All music in the database can have  
a second standby copy available and backup power to take

1 over in an emergency, to operate the system in a fail-safe mode.

Listener response can also be implemented into the digital audio system for radio stations of the present invention. A listener call-in number can be tied into the system so that requested songs can be automatically played. Songs can be selected by a touch-tone phone without involving station personnel. A connection can also be made available to local interactive cable TV networks such that subscribers can have the same capabilities via the television set. Listener demographic information can be easily collected, which can be used for advertising, promotional, or programming purposes.

15 The system of the present invention revolutionizes the way that radio stations operate. Ease of use, cost savings, and increased station efficiency provide a quick return to the station. Additional features and options such as user call-in via telephone or interactive cable television provide tremendous marketing opportunities resulting in more listeners and higher advertising revenues.

In accordance with the teachings herein, the present invention provides a digital radio broadcast station which includes a common digital database having stored therein a plurality of at least several hundred different selections of music to be played and broadcast by the radio station. A processor system is provided for programming the digital radio broadcast station with a sequence of music selections, which are subsequently



1 retrieved in order from the common digital database and  
played over the digital radio broadcast station.

In greater detail, the processor system  
includes a main computer system for operating the radio  
5 station, and also a backup computer system for operating  
the radio station in the event of a failure of the main  
computer system. In that regard, a fiber optic cable  
connects the main computer system with the backup  
computer system for switching between the main and  
10 backup computer systems. The processor system is  
preferably based upon Reduced Instruction Set Computing  
(RISC) architecture. The processor system preferably  
comprises an IBM RS/6000 system with an AIX operating  
system, and also includes first and second disk drive  
15 controllers. The common digital database comprises a  
disk array storage, preferably a dual port RAID disk  
array. The digital radio broadcast station also  
includes a plurality of work station consoles for use by  
personnel responsible for operating the radio station  
20 such as disc jockeys and engineers. A bridged network  
which may include a modem is also provided for  
connecting the radio station to a further digital  
database for music selections not stored in the common  
digital database. The processor system is provided with  
25 a connection to a telephone network, such that radio  
station callers can communicate with the radio station  
by a touch tone telephone. The processor system is also  
provided with a connection to an interactive cable  
television network, such that cable television viewers  
30 can communicate with the radio station over the  
interactive cable television network.

1           The present invention also provides a method  
for operating a radio station which includes digitally  
storing in a common digital database, of a computer  
system, a plurality of at least several hundred  
5 different selections of music which is to be played and  
broadcast by the radio station. Pursuant to the method,  
the computer system is programmed with a sequence of  
music selections to be played by the radio station, and  
the programmed sequence of music selections is  
10 subsequently retrieved from the common digital database  
and broadcast over the radio station.

          The method of operation preferably utilizes a  
main computer system for operating the radio station and  
a backup computer system for operating the radio station  
15 in the event of a failure of the main computer system,  
with the processor systems preferably being based upon  
reduced instruction set computing architecture. The  
main computer system and the backup computer system are  
connected by a fiber optic cable connection for  
20 switching between the main and backup computer systems.  
The method of operation of the radio station also  
provides a plurality of work station consoles for use by  
personnel responsible for operating the radio station,  
such as disc jockeys and engineers. In greater detail,  
25 the step of digitally storing includes digitally storing  
the plurality of at least several hundred different  
selections of music in a disk array, preferably a dual  
port RAID disk array. The method of operation of the  
computer system also provides a bridged network which  
30 may include a modem for connecting the radio station to  
a further digital database for music selections not

1 stored in the common digital database. The method for  
operating the radio station also includes inserting  
commercials and station promotions into the sequence of  
music selections to be played by the radio station. The  
5 method of operation of the radio station also provides a  
connection to a telephone network, such that radio  
station callers can communicate with the radio station  
by a touch tone telephone, and further provides a  
connection to an interactive cable television network,  
10 such that cable television viewers can communicate with  
the radio station over the interactive cable television  
network. The method of operation of the radio station  
also provides a plurality of work station consoles for  
use by personnel responsible for operating the radio  
15 station such as disc jockeys and engineers. The step of  
digitally storing includes storing the plurality of at  
least several hundred different selections of music in a  
disk array, preferably a dual port RAID disk array.

Pursuant to the teachings of the present  
20 invention, the common digital database, either at the  
radio station or provided elsewhere, can also be used to  
provide an audio on demand service or system. In the  
audio on demand system, a communications network is  
provided to users, wherein a user communicates with the  
25 computer system over the communications network to  
indicate a choice of one or more music selections. The  
choice of one or more music selections is then retrieved  
from the common digital database and transmitted over  
the communications network to the user.

30

35

1           In greater detail, the communications network  
can be provided by a telephone system, wherein a user  
communicates with the computer system by a touch tone  
telephone to indicate a choice of one or more music  
5 selections, and the one or more music selections are  
then transmitted over the telephone system to the  
caller. The communications network can also be provided  
by an interactive cable television network, wherein a  
user communicates with the computer system over the  
10 interactive cable television network to indicate a  
choice of one or more music selections, and the one or  
more music selections are then transmitted over the  
interactive cable television network to the user.

BRIEF DESCRIPTION OF THE DRAWINGS

15           The foregoing objects and advantages of the  
present invention for a digital audio system for radio  
stations may be more readily understood by one skilled  
in the art with reference being had to the following  
detailed description of several preferred embodiments  
20 thereof, taken in conjunction with the accompanying  
drawing wherein Figure 1 is a block diagram of an  
exemplary embodiment of a digital audio system for radio  
stations constructed pursuant to the teachings of the  
present invention.

25 DETAILED DESCRIPTION OF THE DRAWINGS

A digital audio system for radio stations  
pursuant to the teachings of the present invention can  
be implemented with the computer hardware illustrated in  
Figure 1, which shows one preferred embodiment of a  
30 Local Area Network (LAN) for a digital audio system for  
a radio station. The Local Area Network includes a

1 first RS/6000 processor 10, a second redundant RS/6000  
processor 12, a plurality of work stations 14a, 14b,  
14c, a Dual Port RAID Disk Array 16, an Ethernet bridge  
and modem 18 to connect the LAN to a Wide Area Network  
5 (WAN), and connections 20a for stereo audio outputs to  
the radio station transmitter, 20b to telephone lines,  
and 20c to interactive cable television systems.

Pursuant to the teachings of the present  
invention, at least one processor 10 is required, but to  
10 provide for optimum performance, a processor system  
based on RISC (Reduced Instruction Set Computing)  
architecture using two processors 10, 12 is preferred.  
The processors 10, 12 accommodate the retrieval and  
output of music stored in memory while providing  
15 multiple users concurrent access to the system.

The processor system supports a high-  
availability processing mode so if one processor system  
10 fails, the other processor system 12 immediately  
takes over without interruption, which is accomplished  
20 via a fiber optic cable 22 linking the two processor  
systems.

The processor systems 10, 12 preferably  
provide hardware support for the output stereo audio,  
and preferably are provided with input/output  
25 connections based upon SCSI (Small Computer System  
Interface), which allows connection of multiple compact  
disk and disk storage units 24 (up to eight) as  
required.

The processor systems 10, 12 support Ethernet  
30 or Token Ring protocols to allow for the connection of  
multiple terminal devices, such as the work stations 14,

1 and also to provide access to remote databases, as by a bridged network which may include a modem 18, in a Wide Area Network (WAN).

5 The processor systems 10, 12 are preferably provided with multiple redundant connections 26 to the disk system 16 to minimize the possibility of system failure, and with connections 20b, 20c to telephone and cable networks to provide for listener opinions and requests.

10 Based upon commercially available equipment, a preferred processor which fulfills the requirements of the present invention is the RS/6000 system manufactured by IBM Corporation with the following components:

- 15 a. 2 Gigabytes of disk storage in the processor;
- b. a SCSI (Small Computer System Interface) Differential Controller (to provide for connections 26 to the disk drives);
- c. 128 Megabytes of main memory;
- 20 d. FDDI (Fiber Data Distributed Interchange) which is a Fiber adapter (single ring) port for fiber optic connections 22 between the two processors;
- e. Audio capture/playback adapter (audio output from machine to 20a);
- 25 f. Digital tape drive with 5.0 gigabyte capacity for system backup (such as is available in Sony camcorders);
- g. 4 (minimum) CD-ROM drives;
- h. a communications adapter which is for a  
30 separate circuit card for connections to telephone/cable systems.

1           Although not recommended, the dual RISC  
configuration can be replaced by a single processor or  
by one based upon a different architecture such as a  
personal computer. However, if this substitution is  
5 made, poor system performance or reliability may result.

          Regarding the disk storage 16, the primary  
requirement for the disk storage is that an on-line  
database of at least 30 gigabytes be available at any  
time. This amount of disk allows for the storage of  
10 approximately 1800 songs; additional storage can be  
added as required. The disks are configured so that if  
one disk unit fails, the system continues operation  
without interruption.

          Additional hardware requirements include:

- 15           a. A second disk drive controller to take  
over in the event that the first disk drive controller  
fails;
- b. Access to the disk drive unit from both  
processors;
- 20           c. Automatic duplication of all data onto a  
backup disk drive unit; and
- d. The ability to easily replace failed  
components without system downtime.

          These requirements are preferably met by a  
25 disk technology called RAID (Redundant Array of  
Inexpensive Disks). Using RAID, any storage subsystem  
component or processor can fail without affecting the  
overall operation of the system. The RAIDIANT ARRAY  
product, available commercially from IBM, when equipped  
30 with an additional array controller, fulfills these  
hardware requirements.

1           Each work station 14 preferably consists of a  
19-inch terminal display and a mouse connected via  
Ethernet or Token Ring to the main computer system. A  
minimum of three work stations 14a, 14b, 14c would  
5 generally be required to be used by the following  
individuals:

          a. Station Manager - responsible for  
selecting and sequencing music and reviewing FCC logs  
produced by the system;

10           b. Engineer - responsible for loading system  
database and monitoring station operation;

          c. On-Air Personality (DJ) - responsible for  
integrating the music sequence into an on-air program.

          Each work station 14 display is preferably  
15 configured to the function to be performed. For  
example, the station manager's display can present  
programming options, while the engineer's display can  
present options relevant to the loading of music into  
the database. A primary feature of the system is that  
20 an individual with little computer experience can  
operate the work station easily as all input is entered  
by a graphical display.

          Regarding communications equipment, the system  
preferably has a connection to optional remote databases  
25 via an Ethernet bridged network which may include a  
modem 18 and high speed data communication lines. This  
allows the system to access and download music which is  
not present in the digital database memory of the radio  
station's system.

30           Regarding computer software, particularly the  
operation system, when using the preferred RISC based



1 processor configuration, a preferred operating system is  
AIX, commercially available from IBM Corporation, which  
provides support for the hardware and for easy system  
operation. Additional features of AIX include:

- 5           a. On-line access to system documentation;
- b. Support, control and design of the  
graphical displays used to operate the system;
- c. Support for a high-availability processing  
mode so that if one processor fails, a second processor  
10 takes over immediately;
- d. The ability to access the music stored in  
digital form and then convert it to audio which is then  
broadcast by the radio station;
- e. Communications support to allow access to  
15 remote systems and databases.

          The database manager will generally be custom  
software written for a particular radio station. The  
database manager stores the music so that it is  
available to the radio station, provides the director  
20 listings to the user, and determines in which computer  
system the requested song is located. Due to the unique  
requirements of the system, the database manager would  
generally be specifically written for this application.

          While several embodiments and variations of  
25 the present invention for a digital audio system for  
radio systems are described in detail herein, it should  
be apparent that the disclosure and teachings of the  
present invention will suggest many alternative designs  
to those skilled in the art.

30

1 WHAT IS CLAIMED IS:

1. A method for operating a digital radio broadcast station comprising:

- a. digitally storing in a common digital  
5 database, of a computer system, a plurality of at least several hundred different selections of music which is to be played and broadcast by the radio station;
- b. programming the computer system with a  
sequence of music selections to be played by the radio  
10 station; and
- c. retrieving from the common digital  
database and broadcasting over the radio station the  
programmed sequence of music selections.

2. A method for operating a digital radio  
15 broadcast station as claimed in claim 1, further comprising providing a main computer system for operating the radio station, and also providing a backup computer system for operating the radio station in the event of a failure of the main computer system.

20 3. A method for operating a digital radio broadcast station as claimed in claim 2, further including providing a plurality of work station consoles for use by personnel responsible for operating the radio station.

25 4. A method for operating a digital radio broadcast station as claimed in claim 3, wherein said step of digitally storing includes the step of digitally storing the plurality of at least several hundred different selections of music in a disk array.

30 5. A method for operating a digital radio broadcast station as claimed in claim 4, wherein the

1 step of digitally storing includes storing the  
selections of music in a dual port RAID disk array.

6. A method for operating a digital radio  
broadcast station as claimed in claim 5, further  
5 comprising providing a bridged network for connecting  
the radio station to a further digital database for  
music selections not stored in the common digital  
database.

7. A method for operating a digital radio  
10 broadcast station as claimed in claim 6, further  
comprising providing a connection from the computer  
system to a telephone network, and wherein radio station  
callers communicate with the radio station by a touch  
tone telephone.

15 8. A method for operating a digital radio  
broadcast station as claimed in claim 7, further  
comprising providing a connection from the computer  
system to an interactive cable television network, and  
wherein cable television viewers communicate with the  
20 radio station over the interactive cable television  
network.

9. A method for operating a digital radio  
broadcast station as claimed in claim 1, further  
including providing a plurality of work station consoles  
25 for use by personnel responsible for operating the radio  
station.

10. A method for operating a digital radio  
broadcast station as claimed in claim 1, wherein said  
step of digitally storing includes the step of digitally  
30 storing the plurality of at least several hundred  
different selections of music in a disk array.

1           11. A method for operating a digital radio  
broadcast station as claimed in claim 10, wherein the  
step of digitally storing includes storing the  
selections of music in a dual port RAID disk array.

5           12. A method for operating a digital radio  
broadcast station as claimed in claim 1, further  
comprising providing a bridged network for connecting  
the radio station to a further digital database for  
music selections not stored in the common digital  
10 database.

13. A method for operating a digital radio  
broadcast station as claimed in claim 1, further  
comprising providing a connection from the computer  
system to a telephone network, and wherein radio station  
15 callers communicate with the radio station by a touch  
tone telephone.

14. A method for operating a digital radio  
broadcast station as claimed in claim 1, further  
comprising providing a connection from the computer  
20 system to an interactive cable television network, and  
wherein cable television viewers communicate with the  
radio station over the interactive cable television  
network.

15. A digital radio broadcast station  
25 comprising:

a. a common digital database having stored  
therein a plurality of at least several hundred  
different selections of music to be played and broadcast  
by the digital radio broadcast station; and

30       b. a processor system for programming the  
digital radio broadcast station with a sequence of music

1 selections to be retrieved from the common digital  
database and played over the digital radio broadcast  
station.

16. A digital radio broadcast station as  
5 claimed in claim 15, wherein the processor system  
includes a main computer system for operating the radio  
station, and also a backup computer system for operating  
the radio station in the event of a failure of the main  
computer system.

10 17. A digital radio broadcast station as  
claimed in claim 16, further comprising a plurality of  
work station consoles for use by personnel responsible  
for operating the radio station.

18. A digital radio broadcast station as  
15 claimed in claim 17, wherein said common digital  
database comprises a disk array storage.

19. A digital radio broadcast station as  
claimed in claim 18, wherein said disk array storage  
comprises a dual port RAID disk array.

20 20. A digital radio broadcast station as  
claimed in claim 19, further comprising a bridged  
network for connecting the radio station to a further  
digital database for music selections not stored in the  
common digital database.

25 21. A digital radio broadcast station as  
claimed in claim 20, further comprising a connection  
from the processor system to a telephone network, and  
wherein radio station callers communicate with the radio  
station by a touch tone telephone.

30 22. A digital radio broadcast station as  
claimed in claim 21, further comprising a connection

1 from the processor system to an interactive cable  
television network, and wherein cable television viewers  
communicate with the radio station over the interactive  
cable television network.

5           23. A digital radio broadcast station as  
claimed in claim 22, wherein the processor system  
includes first and second disk drive controllers.

          24. A digital radio broadcast station as  
claimed in claim 23, wherein the processor system  
10 comprises an IBM RS/6000 system based upon reduced  
instruction set computing architecture, and includes an  
AIX operating system.

          25. A digital radio broadcast station as  
claimed in claim 15, further comprising a plurality of  
15 work station consoles for use by personnel responsible  
for operating the radio station.

          26. A digital radio broadcast station as  
claimed in claim 15, wherein said common digital  
database comprises a disk array storage.

20           27. A digital radio broadcast station as  
claimed in claim 26, wherein said disk array storage  
comprises a dual port RAID disk array.

          28. A digital radio broadcast station as  
claimed in claim 15, further comprising a bridged  
25 network for connecting the radio station to a further  
digital database for music selections not stored in the  
common digital database.

          29. A digital radio broadcast station as  
claimed in claim 15, further comprising a connection  
30 from the processor system to a telephone network, and

1 wherein radio station callers communicate with the radio  
station by a touch tone telephone.

30. A digital radio broadcast station as  
claimed in claim 15, further comprising a connection  
5 from the processor system to an interactive cable  
television network, and wherein cable television viewers  
communicate with the radio station over the interactive  
cable television network.

31. A digital radio broadcast station as  
10 claimed in claim 15, wherein the processor system  
includes first and second disk drive controllers.

32. A digital radio broadcast station as  
claimed in claim 15, wherein the processor system  
comprises an IBM RS/6000 system based upon reduced  
15 instruction set computing architecture, and includes an  
AIX operating system.

33. A method for operating an audio on demand  
network comprising:

a. digitally storing in a common digital  
20 database, of a computer system, a plurality of at least  
several hundred different selections of music;

b. providing a communications network to  
users, wherein a user communicates with the computer  
system over the communications network to indicate a  
25 choice of one or more music selections; and

c. retrieving from the common digital  
database and transmitting over the communications  
network to the user the choice of one or more music  
selections.

30 34. A method for operating an audio on demand  
network as claimed in claim 33, wherein said step of

1 providing a communications network comprises providing a  
connection from the computer system to a telephone  
network, and wherein a user communicates with the  
computer system by a touch tone telephone to indicate a  
5 choice of one or more music selections, and the one or  
more music selections are transmitted over the telephone  
network to the caller.

35. A method for operating an audio on demand  
network as claimed in claim 33, wherein said step of  
10 providing a communications network comprises providing a  
connection from the computer system to an interactive  
cable television network, and wherein a user  
communicates with the computer system over the  
interactive cable television network to indicate a  
15 choice of one or more music selections, and the one or  
more music selections are transmitted over the  
interactive cable television network to the user.

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1 ABSTRACT OF THE DISCLOSURE

5 A digital radio broadcast station which includes a common digital database having stored therein a plurality of at least several hundred (preferably at least 1800) different selections of music to be played and broadcast by the radio station. A processor system is provided for programming the operation of the digital radio broadcast station with a sequence of music selections, which are subsequently retrieved in order from the common digital database and played over the digital radio broadcast station. The processor system preferably includes a main computer system for operating the radio station, and also a backup computer system for operating the radio station in the event of a failure of the main computer system. The processor system is preferably based upon reduced instruction set computing architecture, and preferably comprises an IBM RS/6000 system with an AIX operating system. The common digital database comprises a disk array storage, preferably a dual port RAID disk array. The digital radio broadcast station also includes a plurality of work station consoles for use by personnel responsible for operating the radio station such as disc jockeys and engineers. A bridge network such as a modem is also provided for connecting the radio station to a further digital database for music selections not stored in the common digital database. The processor system is provided with a connection to a telephone network, such that radio station callers can communicate with the radio station by a touch tone telephone, and is also provided with a connection to an interactive cable television network,

1 such that cable television viewers can communicate with  
the radio station over the interactive cable television  
network.

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DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below adjacent to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of subject matter (process, machine, manufacture, or composition of matter, or an improvement thereof) which is claimed and for which a patent is sought by way of the application entitled: DIGITAL AUDIO SYSTEM FOR RADIO STATIONS

which (check) ☒ is attached hereto.  
☒ and is amended by the Preliminary Amendment attached hereto.  
☐ was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_.  
☐ and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understood the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information known to me to be material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
<u>N/A</u>			Yes	No
(Number)	(Country)	(Day/Month/Year Filed)		
<u></u>	<u></u>	<u></u>	Yes	No
(Number)	(Country)	(Day/Month/Year Filed)		

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as any subject matter of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

<u>08/186,302</u>	<u>January 25, 1994</u>	<u>Pending</u>
(Appl. Ser. No.)	(Filing Date)	(Status-patented, pending, abandoned)
<u></u>	<u></u>	<u></u>
(Appl. Ser. No.)	(Filing Date)	(Status-patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or patent agent(s) to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith:

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I hereby declare that all statements herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Full name of fourth inventor (if any) \_\_\_\_\_  
Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_ Citizenship \_\_\_\_\_  
Post Office Address \_\_\_\_\_

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DIGITAL AUDIO SYSTEM FOR RADIO STATIONS

the specification of which (check only one item below):

☒ is attached hereto.

☐ was filed as United States application

Serial No. \_\_\_\_\_

on \_\_\_\_\_

and was amended

on \_\_\_\_\_ (if applicable).

☐ was filed as PCT international application

Number \_\_\_\_\_

on \_\_\_\_\_

and was amended under PCT Article 19

on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

COUNTRY (If PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day month year)	PRIORITY CLAIMED UNDER 35 USC 119
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

**PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:**

U.S. APPLICATIONS			STATUS (Check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE		PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			

**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. Anthony C. Scott, Reg. No. 25,439; Stephen D. Murphy, Reg. No. 22,002; Leopold Presser, Reg. No. 19,827; William C. Roch, Reg. No. 24,972; Kenneth L. King, Reg. No. 24,223; Frank S. DiGiglio, Reg. No. 31,346; Paul J. Esatto, Jr., Reg. No. 30,749; John S. Sensny, Reg. No. 28,757 and Mark J. Cohen, Reg. No. 32,211.

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	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY	

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201	SIGNATURE OF INVENTOR 202	SIGNATURE OF INVENTOR 203
DATE	DATE	DATE

[ ] Signature for fourth and subsequent joint inventors.  
Number of pages added \_\_\_\_\_.

